2023
TP-153

Course Specification

(Bachelor)

Course Title:	Computer Networks
Course Code:	503442-3
Program:	Bachelor in Computer Science
Department:	Department of Computer Science
College:	College of Computers and Information Technology
Institution:	Taif University
Version:	V1.2024
Last Revision Date:	01/02/2024

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A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (8/4)					
4. Course general Description:					
This course provides the students with an understanding of the fundamental concepts of computer networking. Important concepts related to layered architecture, wired and wireless local area networks, wide area networks, packet switching and routing, transport protocol, flow control, and congestion control are covered in this course.					
5. Pre-requirements for this course (if any)**:**					
503410-3					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
• Students should explain the computer network principles and paradigms. • **The student should distinguish the network layers, and know their protocols and functionalities.** • Students get hands on experience on computer networks.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Describe the network architecture, network features and OSI layered services.	K1	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments
1.2	Ability to apply knowledge of mathematics, probability, and statistics to analyze access and networking protocols.	K1	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments
1.3	Explain network protocols for routing, flow control, and congestion control.	K1	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments
...				
2.0	**Skills**			
2.1	Ability to describe end-to-end network transmission	S1	Discussion Problem Solving	Written Exams Quizzes Assignments Oral Test Practical Test

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
2.2				
...				
3.0	**Values, autonomy, and responsibility**			
3.4				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to computer networks, features and components	3
2.	OSI and Internet layered models	3
3.	Physical layer: physical media types, interfaces and modulation techniques	3
4.	Data link layer (Wired LAN 802.3 and WAN): framing, error control, flow control.	3
5.	Logical link control, medium access control	3
6.	Data link layer (Wireless LAN 802.11 and WAN): framing, error control, flow control	3
7.	wireless medium access control	3
8.	Mid Semester Exams	3
9.	Network layer: circuit and packet switching	3
10.	Routing algorithms	3
11.	IP protocol, addressing, subnetting	3
12.	Transport layer: services, UDP, TCP, sockets	3
13.	Flow control and congestion control algorithms.	3
14.	Application Layer protocols (Web, HTTP, FTP, Email, DNS, etc) (if time permit)	3
15.	Revision	3

Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	2, 5, 8	10%
2.	Midterm Exam	8	30%
3.	Quizzes	3,7,9	10%

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
4.	Final Exam	16	50%
5.			
...			

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	"Data Communications and Networking", Behrouz Forouzan, McGraw-Hill, 4th editon, 2004
Supportive References	Computer Networking:A Top-Down Approach Featuring the Internet, James F. Kurose and Keith W. Ross, Addison Wesley, Pearson, 6th Edition, 2012.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional Classrooms
Technology equipment (projector, smart board, software)	White Board. Datashow.
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect (Surveys)
Effectiveness of Students assessment	Students	Indirect (Surveys)
Quality of learning resources	Students	Indirect (Surveys)
The extent to which CLOs have been achieved	Faculty	Direct (Course Report)
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**CS COUNCIL**
REFERENCE NO.	**MEETING #11**
DATE	**07/03/2024**